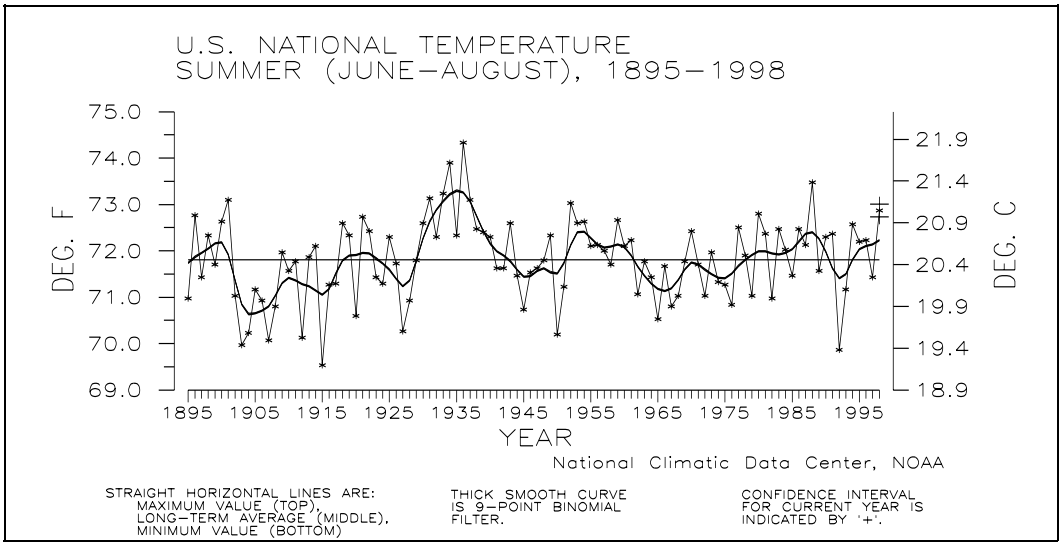
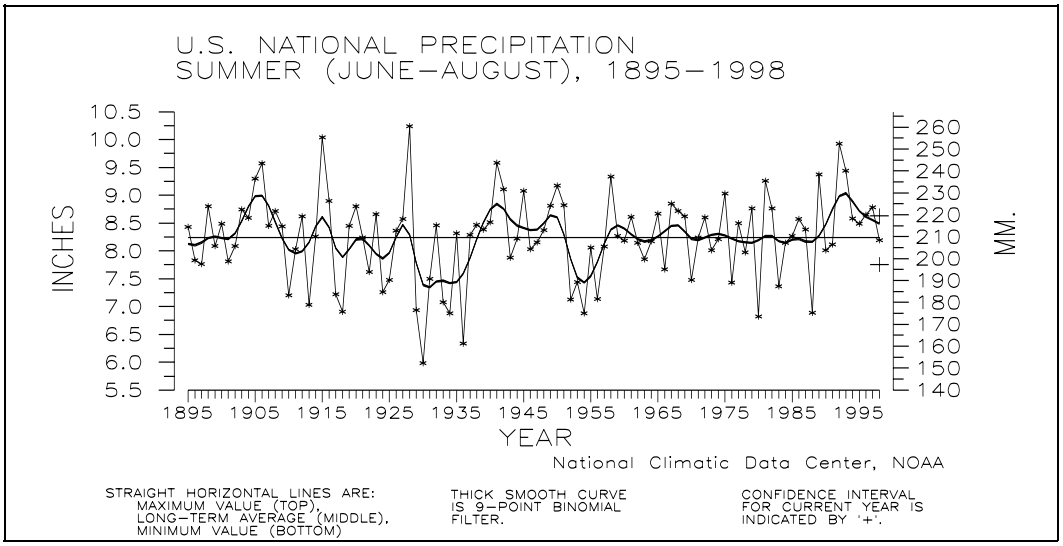
AUGUST 1998
Includes 1998 Summer Summary

HISTORICAL CLIMATOLOGY SERIES 4-7
Volume 10 Number 8

CLIMATE VARIATIONS BULLETIN





noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE / NATIONAL CLIMATIC DATA CENTER ASHEVILLE, N.C.

This CLIMATE VARIATIONS BULLETIN (CVB) is a preliminary report that puts current monthly climate anomalies into historical perspective using climate databases archived at the National Climatic Data Center (NCDC). It is issued on a monthly basis. Supplemental sections are included which address seasonal and annual perspectives, when appropriate.

Current data are based on preliminary reports from River Forecast Center stations and First and Second Order airport stations obtained from the National Weather Service (NWS) Climate Prediction Center. THE CURRENT DATA SHOULD BE USED WITH CAUTION. These preliminary data are useful for estimating how current anomalies compare to the historical record, however the actual values and rankings for the current year will change as the final data arrive at NCDC and are processed.

The following NCDC datasets are used for the historical data: the climate division drought database (TD-9640), and the hurricane datasets (TD-9636 and TD-9697). It should be noted that the climate division drought database consists of monthly data for 344 climate divisions in the contiguous United States. These divisional values are calculated from the 6000+ station Cooperative Observer network.

If you are a climate researcher and would like to order copies of the historical datasets used to make graphs of the type in this report, call 828-271-4994 or fax a letter to 828-271-4876 or mail a letter to the address given below, ATTN: Research User Services.

All other questions or requests for data should be made by calling 828-271-4800 or sending a fax to 828-271-4876 or by writing to:

National Climatic Data Center, NOAA
Federal Building
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Asheville, NC 28801-5001

If you use any of the information from this CVB, please identify "National Climatic Data Center, NOAA" as the source.

UNITED STATES AUGUST AND SUMMER CLIMATE IN HISTORICAL PERSPECTIVE

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TABLE 1. PRECIPITATION AND TEMPERATURE RANKS, BASED ON THE PERIOD 1895-1998. 1 = DRIEST/COLDEST, 104 = WETTEST/WARMEST FOR AUGUST 1998, 104 = WETTEST/WARMEST FOR JUL-AUG 1998, 104 = WETTEST/WARMEST FOR MAR-AUG 1998, 103 = WETTEST/WARMEST FOR SEP 1997-AUG 1998.

REGION	AUG 1998	JUL-AUG 1998	MAR-AUG 1998	SEP 1997-AUG 1998
PRECIPITATION:				
NORTHEAST	11	7	72	83
EAST NORTH CENTRAL	72	35	84	67
CENTRAL	27	47	98	78
SOUTHEAST	34	23	33	102
WEST NORTH CENTRAL	67	72	80	76
SOUTH	67	49	11	42
SOUTHWEST	28	63	64	87
NORTHWEST	13	36	91	83
WEST	41	60	97	102
NATIONAL	26	27	62	97
TEMPERATURE:				
NORTHEAST	81	71	98	99
EAST NORTH CENTRAL	87	82	97	101
CENTRAL	73	66	80	91
SOUTHEAST	71	88	87	66
WEST NORTH CENTRAL	94	100	71	98
SOUTH	74	99	90	84
SOUTHWEST	89	95	50	71
NORTHWEST	97	104	87	98
WEST	102	100	32	62
NATIONAL	98	99	87	100

TABLE 2. EXTREMES, 1961-90 NORMALS, AND 1998 VALUES FOR AUGUST. IT SHOULD BE NOTED THAT THE 1998 VALUES WILL CHANGE WHEN THE FINAL DATA ARE PROCESSED.

PRECIPITATION (INCHES)

REGION	DRIEST VALUE	DRIEST YEAR	WETTEST VALUE	WETTEST YEAR	NORMAL PCPN	1998 PCPN
NORTHEAST	1.78	1957	8.01	1955	3.87	2.67
EAST NORTH CENTRAL	1.35	1930	6.27	1980	3.73	3.95
CENTRAL	1.55	1953	6.30	1915	3.71	2.87
SOUTHEAST	2.71	1930	9.78	1901	5.19	4.48
WEST NORTH CENTRAL	.77	1967	3.03	1968	1.71	1.84
SOUTH	1.22	1943	6.06	1915	2.98	3.08
SOUTHWEST	.56	1962	3.25	1963	1.96	1.49
NORTHWEST	.10	1967	2.98	1968	.96	.23
WEST	.00	1911	2.01	1983	.50	.20
NATIONAL	1.76	1929	3.55	1977	2.66	2.34*

* PRELIMINARY VALUE, CONFIDENCE INTERVAL + OR - .16 INCHES

TEMPERATURE (DEGREES F)

REGION	COLDEST VALUE	COLDEST YEAR	WARMEST VALUE	WARMEST YEAR	NORMAL TEMP	1998 TEMP
NORTHEAST	62.9	1903	71.9	1937	67.4	69.0
EAST NORTH CENTRAL	63.0	1915	74.6	1947	67.6	70.0
CENTRAL	68.9	1915	79.8	1936	73.4	75.0
SOUTHEAST	75.8	1967	81.3	1900	78.0	78.8
WEST NORTH CENTRAL	63.0	1911	73.0	1983	67.4	70.3
SOUTH	76.2	1992	84.5	1943	80.2	81.9
SOUTHWEST	68.1	1968	74.6	1994	71.3	72.7
NORTHWEST	59.2	1899	69.4	1967	65.2	68.0
WEST	67.2	1899	75.7	1958	72.4	75.6
NATIONAL	70.0	1927	75.4	1983	72.3	74.3*

* PRELIMINARY VALUE, CONFIDENCE INTERVAL + OR - .2 DEG. F.

TABLE 3. TEMPERATURE AND PRECIPITATION RANKINGS FOR JAN-AUG 1998, BASED ON THE PERIOD 1895-1998. 1 = DRIEST/COLDEST, 104 = WETTEST/HOTTEST.

REGION	PRECIPITATION	TEMPERATURE
NORTHEAST	96	104
EAST NORTH CENTRAL	96	102
CENTRAL	96	101
SOUTHEAST	90	86
WEST NORTH CENTRAL	81	91
SOUTH	33	96
SOUTHWEST	66	73
NORTHWEST	96	95
WEST	104	50
NATIONAL	100	101

TABLE 4. EXTREMES, 1961-90 NORMALS, AND 1998 VALUES FOR JAN-AUG

	PRECIPITATION (INCHES)					
	DRIEST		WETTEST		NORMAL	1998
REGION	VALUE	YEAR	VALUE	YEAR	PCPN	PCPN
NORTHEAST	20.70	1965	34.09	1996	27.36	31.59
EAST NORTH CENTRAL	13.69	1910	27.88	1993	21.10	23.98
CENTRAL	20.02	1936	39.24	1950	29.41	34.99
SOUTHEAST	26.29	1954	45.20	1991	36.37	40.85
WEST NORTH CENTRAL	7.90	1934	18.62	1993	12.83	14.12
SOUTH	16.93	1954	32.33	1905	24.04	22.32
SOUTHWEST	6.30	1924	14.48	1941	9.20	10.09
NORTHWEST	9.14	1924	21.79	1983	16.31	19.43
WEST	4.76	1924	20.88	1998	10.33	20.88
NATIONAL	15.92	1934	23.34	1979	20.05	22.77

	TEMPERATURE (DEGREES F)					
	COLDEST		WARMEST		NORMAL	1998
REGION	VALUE	YEAR	VALUE	YEAR	TEMP	TEMP
NORTHEAST	44.9	1907	50.9	1998	47.3	50.9
EAST NORTH CENTRAL	41.3	1912	50.5	1987	45.4	49.5
CENTRAL	51.9	1978	59.2	1921	54.9	57.9
SOUTHEAST	61.8	1940	66.4	1990	63.7	65.6
WEST NORTH CENTRAL	41.2	1950	50.0	1934	45.8	47.6
SOUTH	61.6	1979	66.7	1911	63.9	66.1
SOUTHWEST	50.2	1917	57.3	1934	53.8	54.3
NORTHWEST	45.3	1955	53.0	1934	48.6	50.5
WEST	54.0	1949	59.9	1934	56.6	56.3
NATIONAL	52.1	1912	56.9	1934	54.3	56.2

TABLE 5. TEMPERATURE AND PRECIPITATION RANKINGS FOR SUMMER 1998, BASED ON THE PERIOD 1895-1998. 1 = DRIEST/COLDEST, 104 = WETTEST/HOTTEST.

REGION	PRECIPITATION	TEMPERATURE
NORTHEAST	53	55
EAST NORTH CENTRAL	74	57
CENTRAL	92	63
SOUTHEAST	9	99
WEST NORTH CENTRAL	94	70
SOUTH	22	101
SOUTHWEST	62	62
NORTHWEST	48	97
WEST	89	75
NATIONAL	44	96

TABLE 6. EXTREMES, 1961-90 NORMALS, AND 1998 VALUES FOR JUNE-AUGUST

PRECIPITATION (INCHES)

REGION	DRIEST VALUE	DRIEST YEAR	WETTEST VALUE	WETTEST YEAR	NORMAL PCPN	1998 PCPN
NORTHEAST	7.36	1913	15.15	1903	11.52	11.46
EAST NORTH CENTRAL	6.51	1910	16.40	1993	11.23	11.95
CENTRAL	6.32	1930	17.35	1958	11.91	13.99
SOUTHEAST	10.63	1980	21.76	1906	15.61	12.85
WEST NORTH CENTRAL	3.74	1917	12.11	1993	6.46	8.07
SOUTH	5.31	1954	13.55	1950	9.67	7.99
SOUTHWEST	2.75	1900	7.81	1921	4.72	4.94
NORTHWEST	.80	1919	5.47	1983	3.17	2.56
WEST	.24	1905	2.66	1913	1.30	1.57
NATIONAL	5.98	1930	10.24	1928	8.24	8.19*

* PRELIMINARY VALUE, CONFIDENCE INTERVAL + OR - .44 INCHES

TEMPERATURE (DEGREES F)

REGION	COLDEST VALUE	COLDEST YEAR	WARMEST VALUE	WARMEST YEAR	NORMAL TEMP	1998 TEMP
NORTHEAST	63.8	1903	70.4	1949	67.0	67.4
EAST NORTH CENTRAL	63.0	1915	71.5	1988	67.7	68.2
CENTRAL	70.5	1915	78.1	1934	73.3	74.1
SOUTHEAST	75.5	1967	80.1	1952	77.5	79.4
WEST NORTH CENTRAL	61.5	1915	71.4	1936	66.7	67.0
SOUTH	77.3	1992	83.8	1934	79.7	82.5
SOUTHWEST	68.2	1907	74.1	1994	71.0	71.2
NORTHWEST	59.5	1993	67.2	1961	63.7	65.4
WEST	68.1	1907	74.3	1918	71.3	71.9
NATIONAL	69.5	1915	74.3	1936	71.7	72.9*

* PRELIMINARY VALUE, CONFIDENCE INTERVAL + OR - .1 DEG. F.

TABLE 7.

STATISTICS FOR SELECTED RIVER BASINS: PRECIPITATION RANKING FOR OCT-AUG 1997-98, WHERE RANK OF 1 = DRIEST, 103 = WETTEST, BASED ON THE PERIOD 1895 TO 1998, AREAL PERCENT OF THE BASIN EXPERIENCING SEVERE OR EXTREME LONG-TERM (PALMER) DROUGHT, AND AREAL PERCENT OF THE BASIN EXPERIENCING SEVERE OR EXTREME LONG-TERM (PALMER) WET CONDITIONS, AS OF AUGUST 1998. RIVER BASIN REGIONS AS DEFINED BY THE U.S. WATER RESOURCES COUNCIL.

RIVER BASIN	PRECIPITATION RANK	% AREA DRY	% AREA WET
MISSOURI BASIN	90	.0%	32.7%
PACIFIC NORTHWEST BASIN	77	.0%	38.3%
CALIFORNIA RIVER BASIN	101	.0%	100.0%
GREAT BASIN	99	.0%	87.0%
UPPER COLORADO BASIN	57	.0%	44.7%
LOWER COLORADO BASIN	74	.0%	37.6%
RIO GRANDE BASIN	40	1.6%	8.8%
ARKANSAS-WHITE-RED BASIN	57	11.5%	16.3%
TEXAS GULF COAST BASIN	45	54.9%	.0%
SOURIS-RED-RAINY BASIN	66	.0%	14.7%
UPPER MISSISSIPPI BASIN	98	.0%	28.2%
LOWER MISSISSIPPI BASIN	53	7.7%	8.5%
GREAT LAKES BASIN	41	34.6%	.0%
OHIO RIVER BASIN	61	.0%	2.3%
TENNESSEE RIVER BASIN	79	.0%	39.6%
NEW ENGLAND BASIN	78	.0%	13.5%
MID-ATLANTIC BASIN	91	.0%	2.6%
SOUTH ATLANTIC-GULF BASIN	98	10.7%	.0%

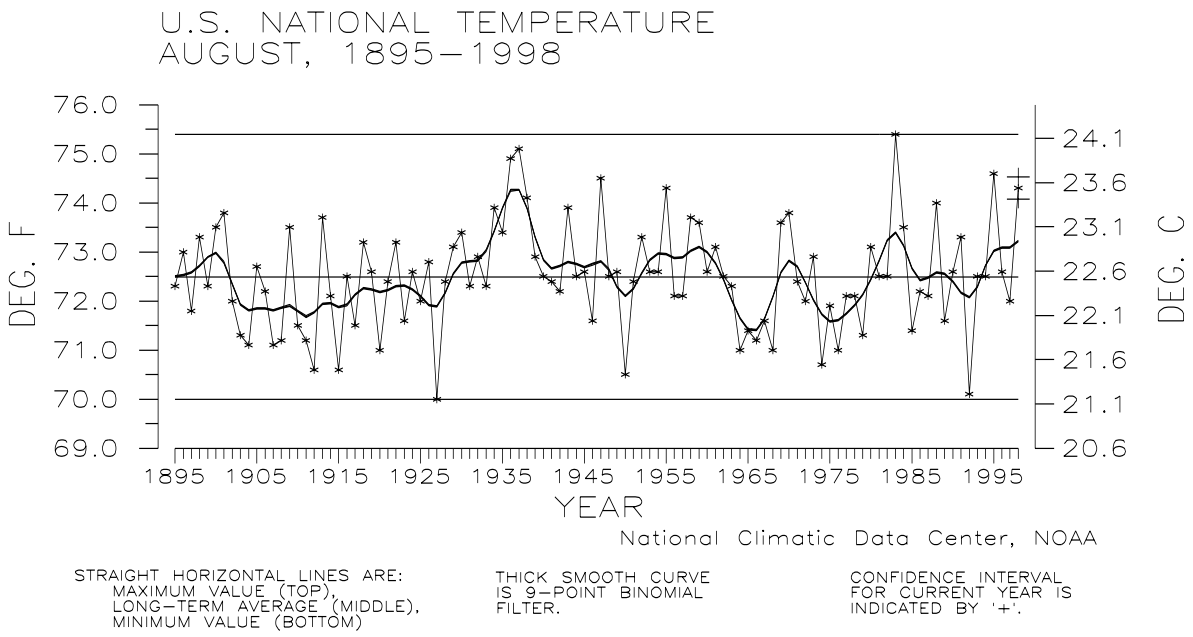

Figure 1: Preliminary data for August 1998 indicate that temperature averaged across the contiguous United States was much above the long-term mean ranking as the seventh warmest August since 1895. Nearly 26% of the country was much warmer than normal while none of the country was much cooler than normal.

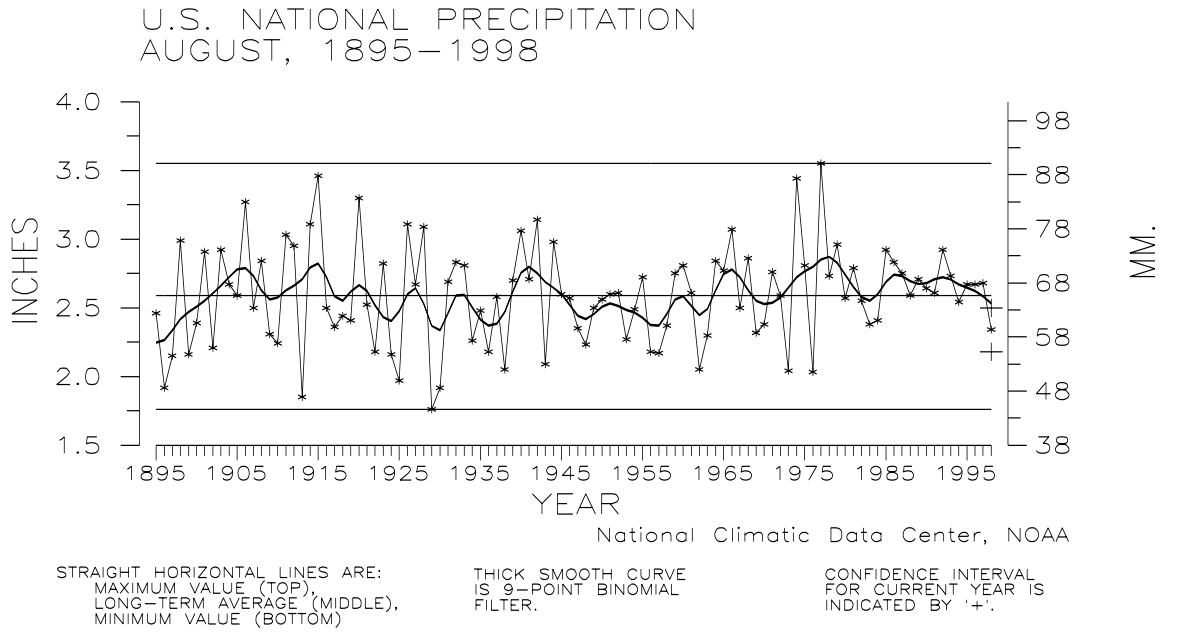

Figure 2: Preliminary precipitation data indicate that August 1998 was the 26th driest such month since 1895. Over seven percent of the country experienced much drier than normal conditions while about five percent of the country was much wetter than normal.

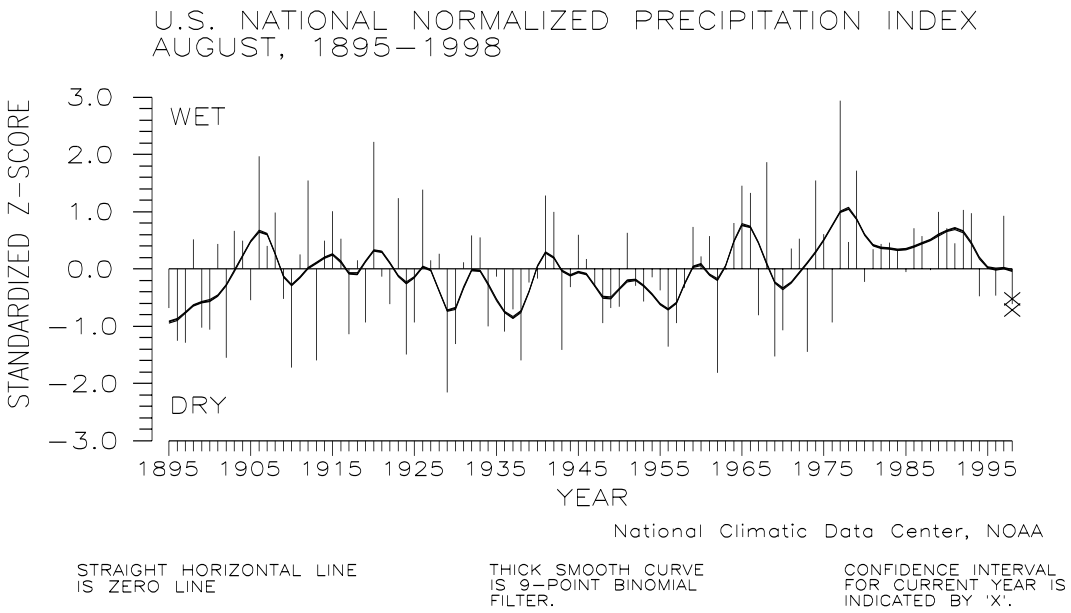

Figure 3: The preliminary national standardized precipitation index ranked August 1998 as the 31st driest such month on record. This standardized z-score is estimated to be accurate to within 0.102 index units and its confidence interval is shown as an 'X'.

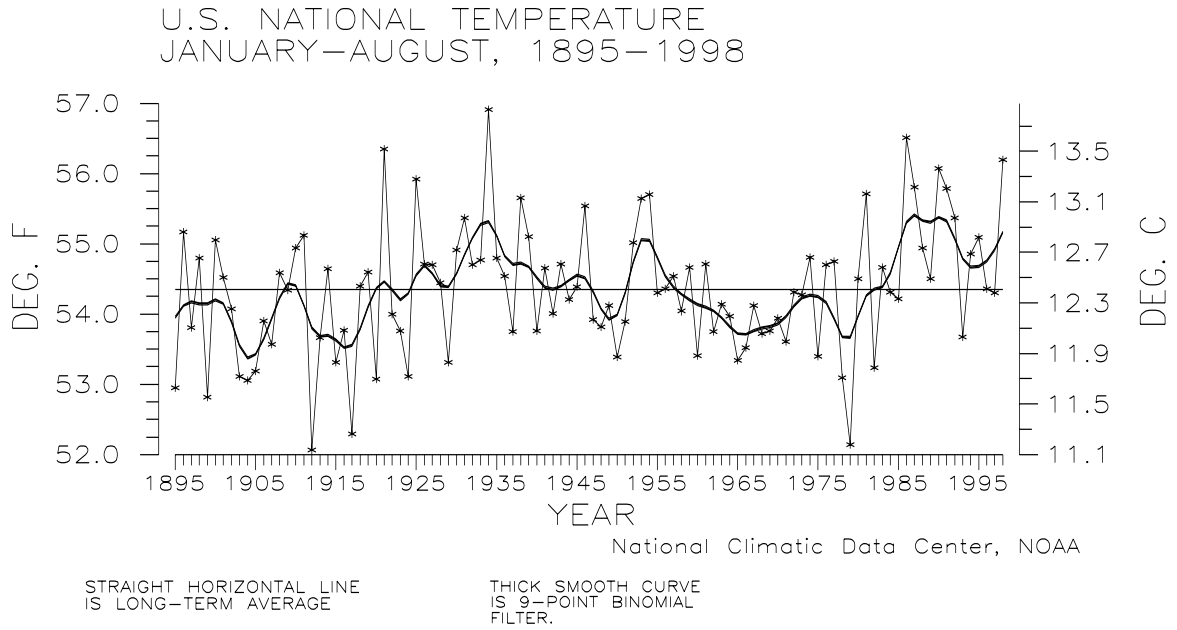

Figure 4: Based upon preliminary data, January-August 1998 was the fourth warmest such period on record. Nearly 50% of the country had much warmer than normal January-August temperatures while none of the country was much cooler than normal. Ten of the last thirteen such five-month periods have been above- to much-above the long-term mean.

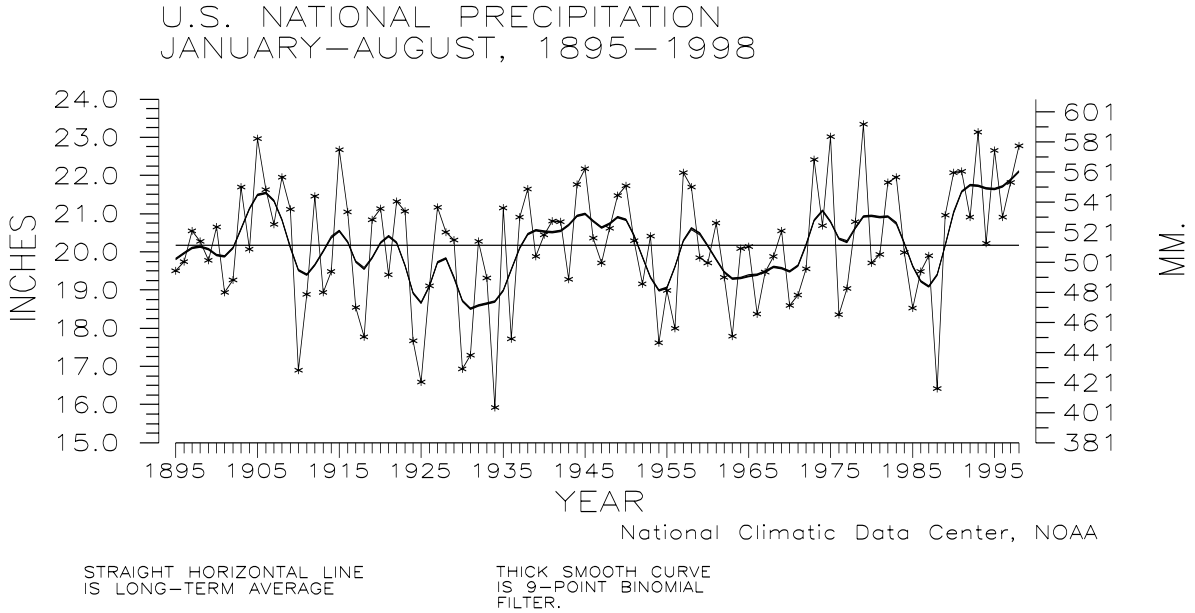

Figure 5: Preliminary precipitation data indicate that the year-to-date, January-August 1998, was the fifth wettest such eight-month period since records began. About 28% of the country was much wetter than normal while less than two percent of the country was much drier than normal. Nine of the last ten such eight-month periods have been wetter-to much-wetter than normal.

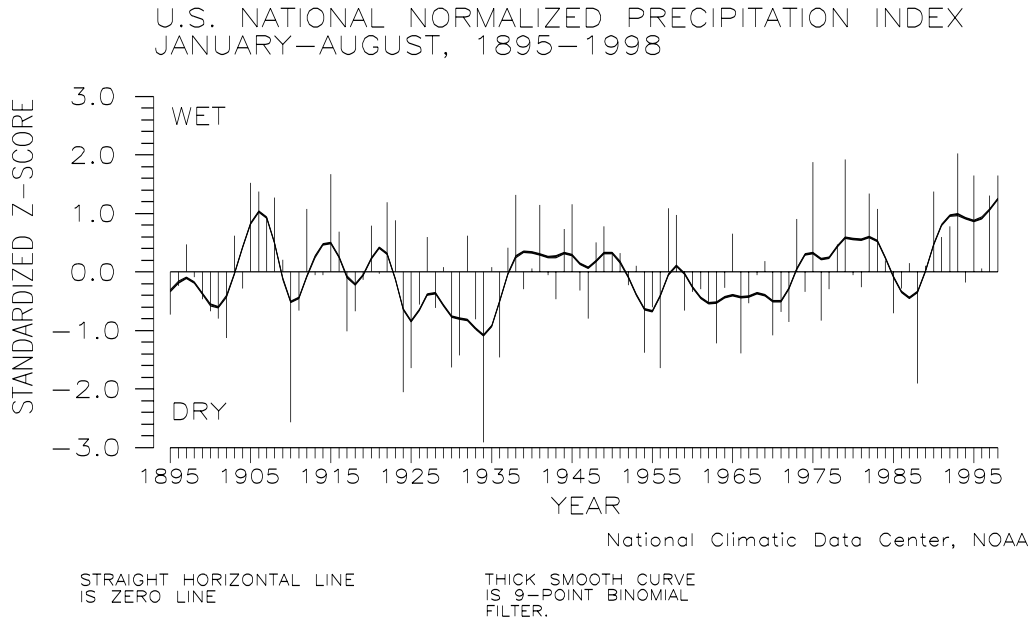

Figure 6: The preliminary national year-to-date standardized precipitation index ranked January-August 1998 as the sixth wettest such period since 1895.

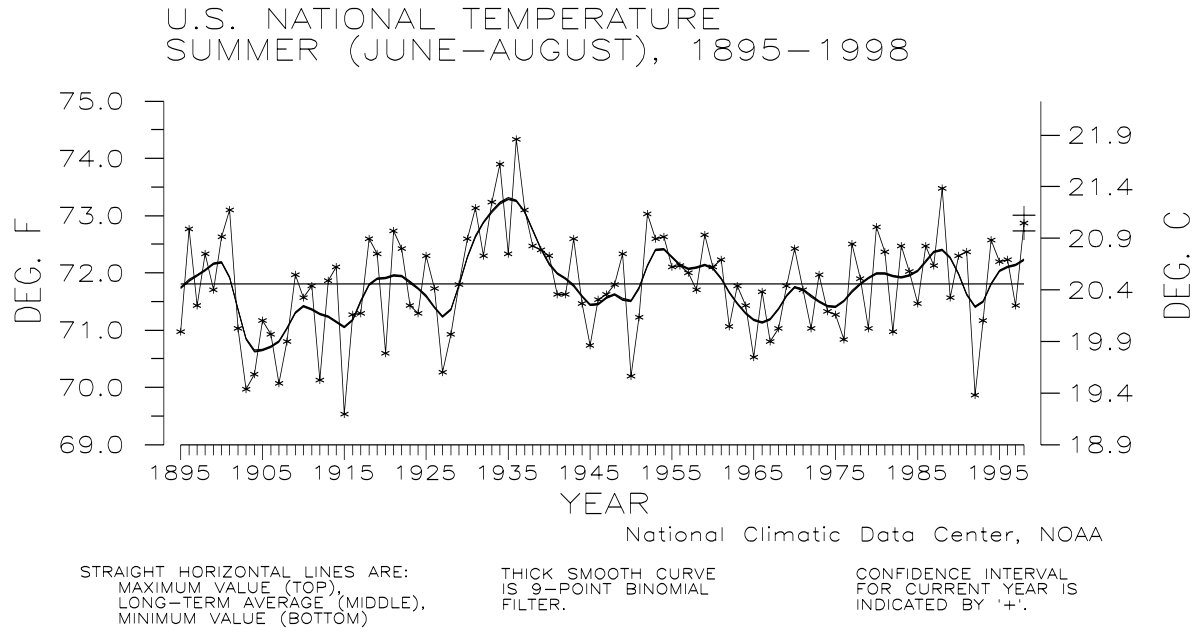

Figure 7: Preliminary temperature data indicate that the 1998 Summer season, June-August, for the contiguous United States, was the ninth warmest such season since 1895. Twenty-eight percent of the country was much warmer than normal while none of the country was much cooler than normal.

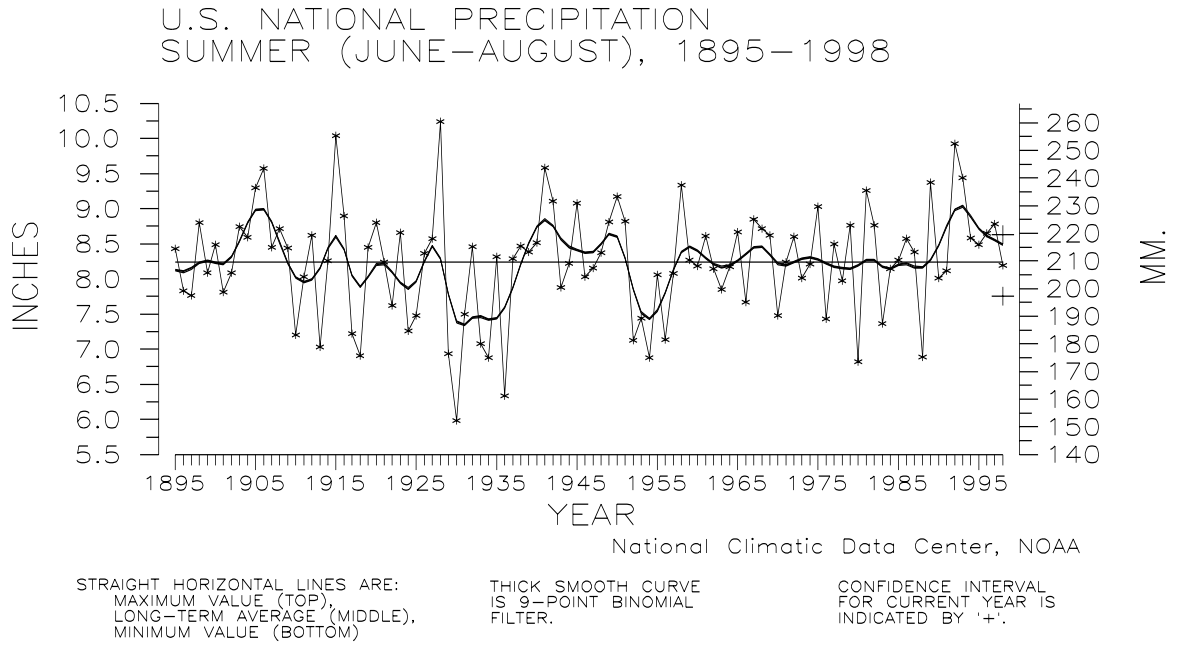

Figure 8: Preliminary data indicate that Summer 1998 was the 44th driest such period on record for the contiguous United States. Nearly eight percent of the country was much drier than normal while about nine percent was much wetter than normal.

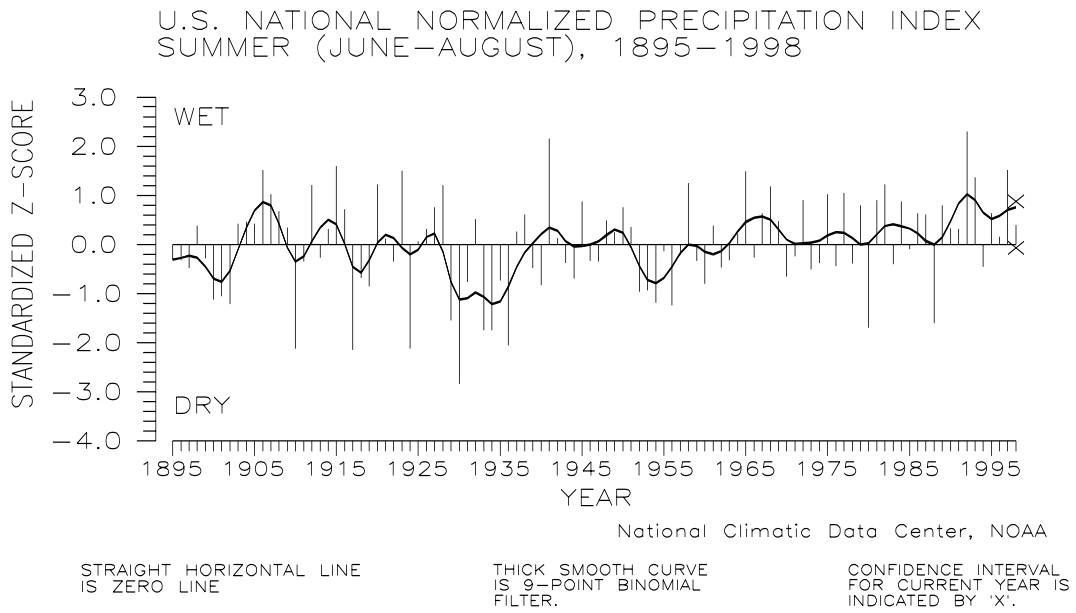

Figure 9: The preliminary national standardized precipitation index ranked Summer 1998 as the 39th wettest summer on record. This index shows more accurately how precipitation across the country compares to the local normal (60-year average).

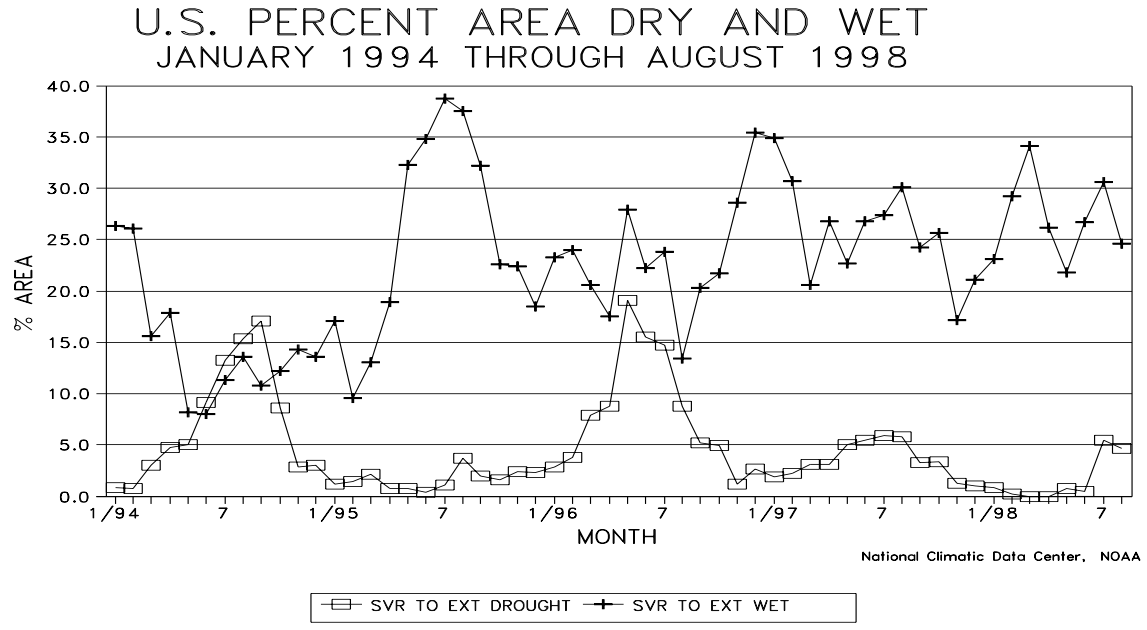

Figure 10: Long-term drought coverage (as measured by the Palmer Drought Index) remained nearly steady during August 1998 with less than five percent of the country experiencing severe to extreme drought and nearly 25% of the country experiencing severe to extreme wetness by the end of the month. Core wet areas included the Great Basin, California, the Central and Northern Rockies, and the Central and Northern Great Plains. Core dry areas included Central Oklahoma, North-Central Texas, and portions of Florida, Georgia, and Louisiana.

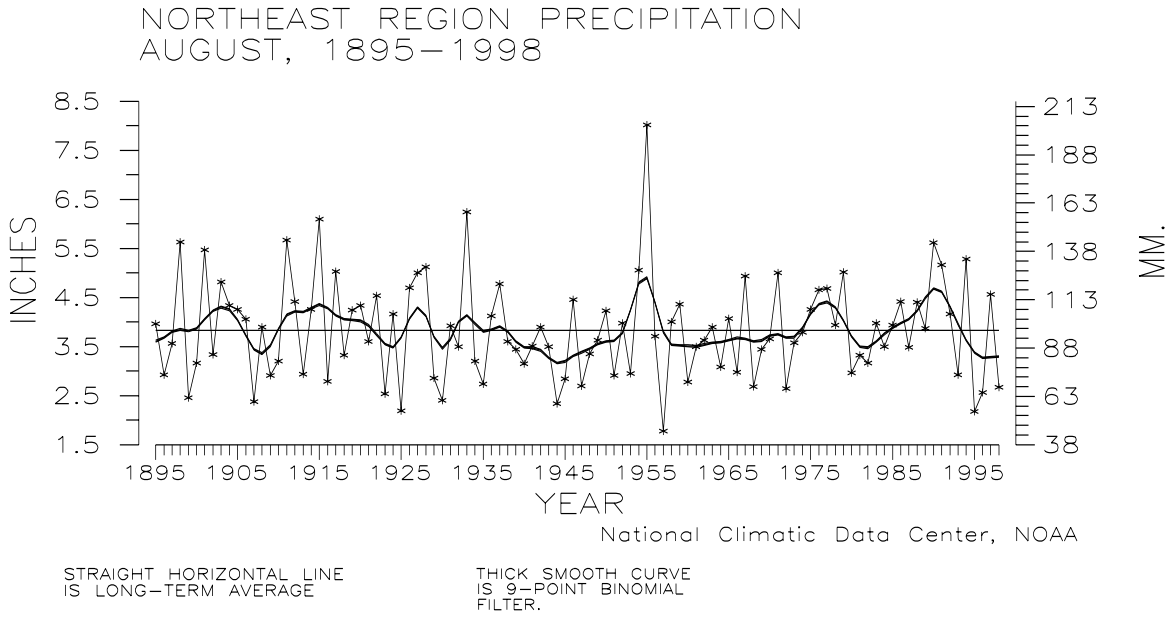

Figure 11: Preliminary precipitation date indicate that August 1998 was the 11th driest such month on record for the Northeast Region. The Northeast Region includes each state from Maryland and Pennsylvania, northeastward.

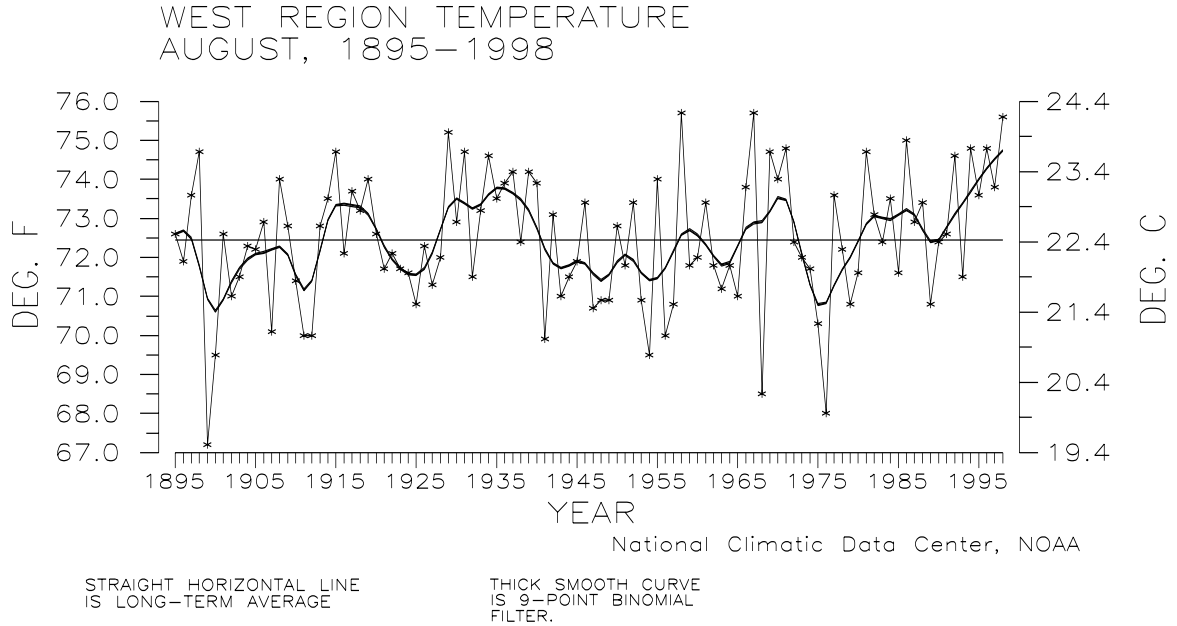

Figure 12: Preliminary data indicate that August 1998 was the third warmest such month since 1895 for the West Region. Six of the last seven months of August have been much above the long-term mean. The West Region includes California and Nevada.

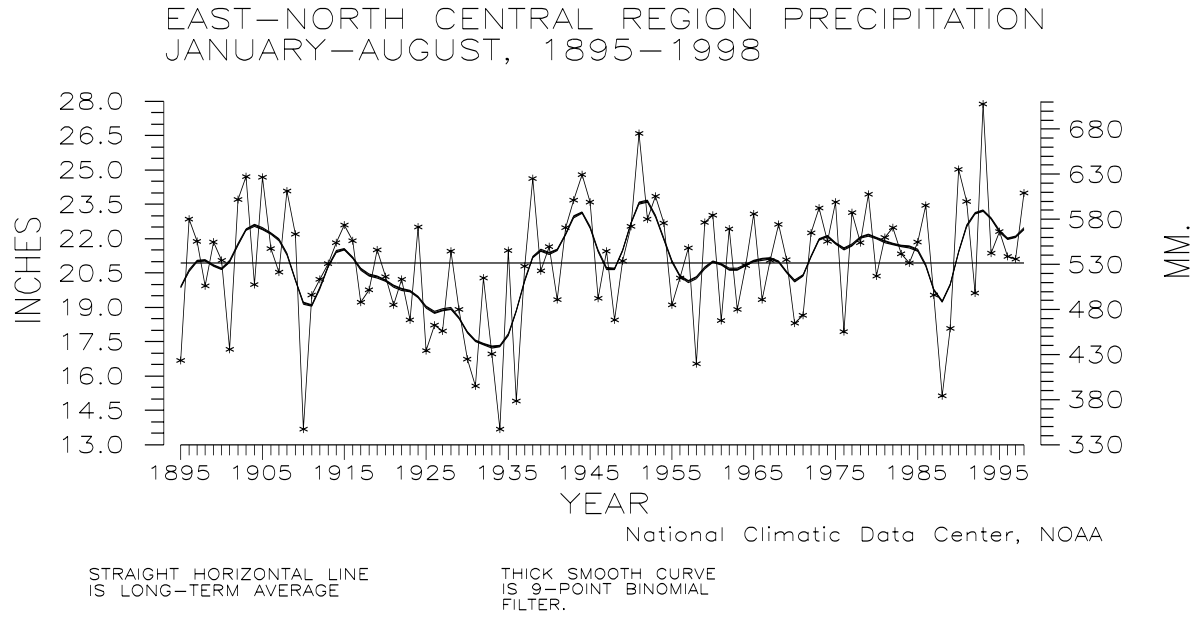

Figure 13: The year-to-date was the ninth wettest such 8-month period on record for the East-North Central Region. The East-North Central Region includes Iowa, Michigan, Minnesota, and Wisconsin.

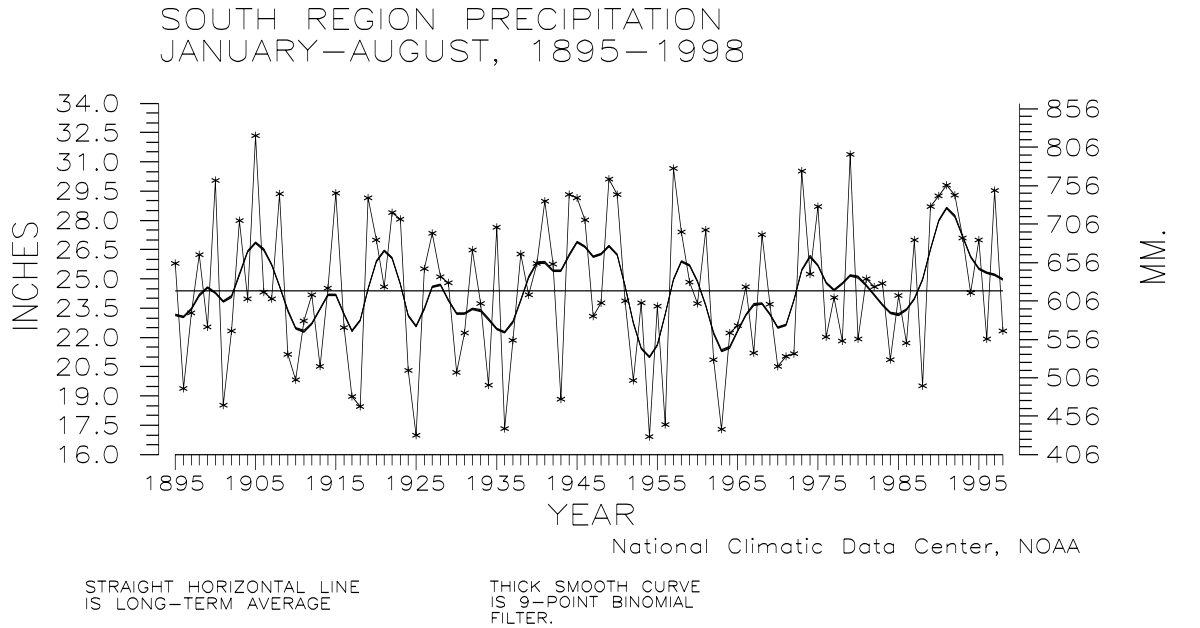

Figure 14: Preliminary data indicate that January-August 1998 was the 33rd driest such period on record for the South Region. The South Region includes Arkansas, Kansas, Louisiana, Mississippi, Oklahoma, and Texas.

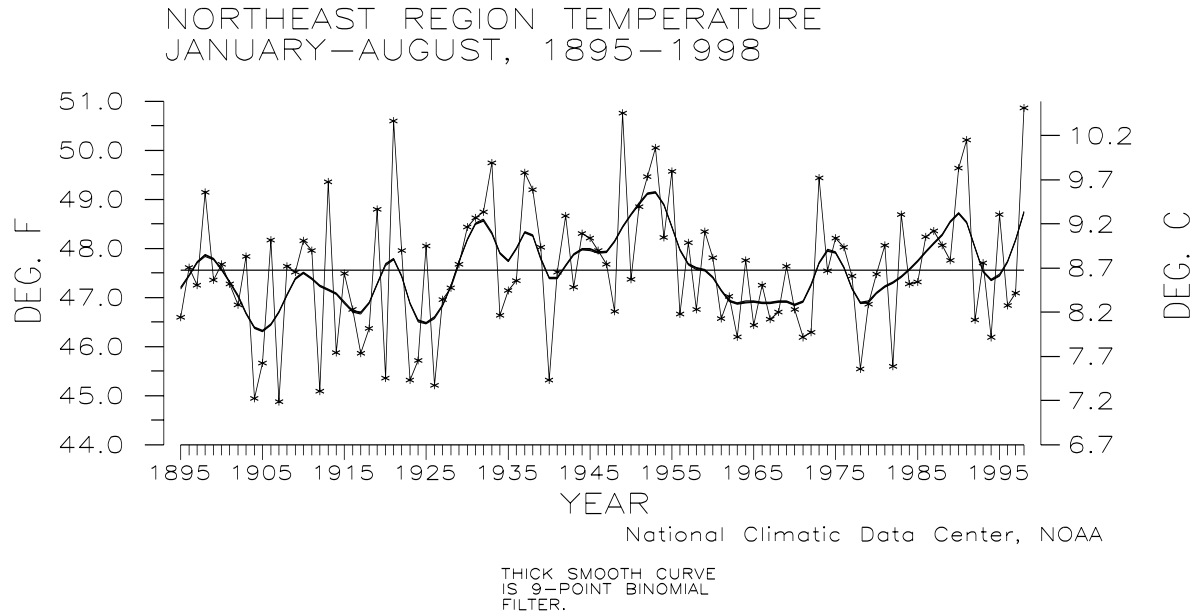

Figure 15: Based upon preliminary data, the year-to-date was the warmest such period on record for the Northeast Region.

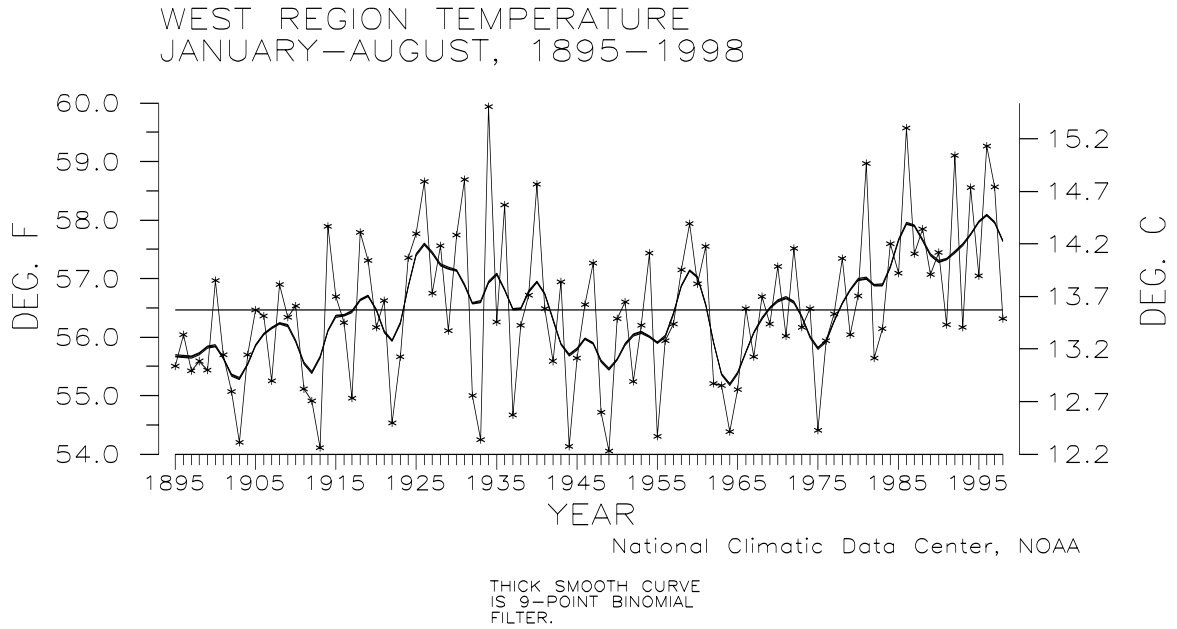

Figure 16: Based upon preliminary data, January-August 1998 was the 50th coolest such year-to-date period on record for the West Region. Only three of the last 15 such eight-month periods have been below the long-term mean.

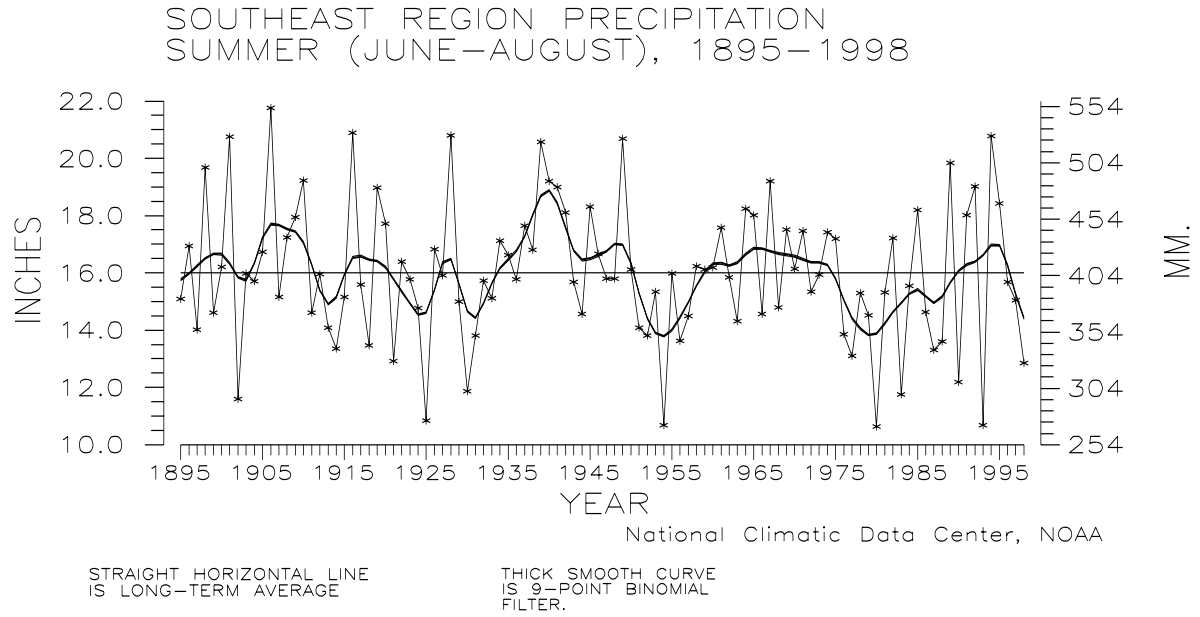

Figure 17: Summer 1998 was the ninth driest such season since 1895 for the Southeast Region. The Southeast Region includes Virginia, North Carolina, South Carolina, Georgia, Florida, and Alabama.

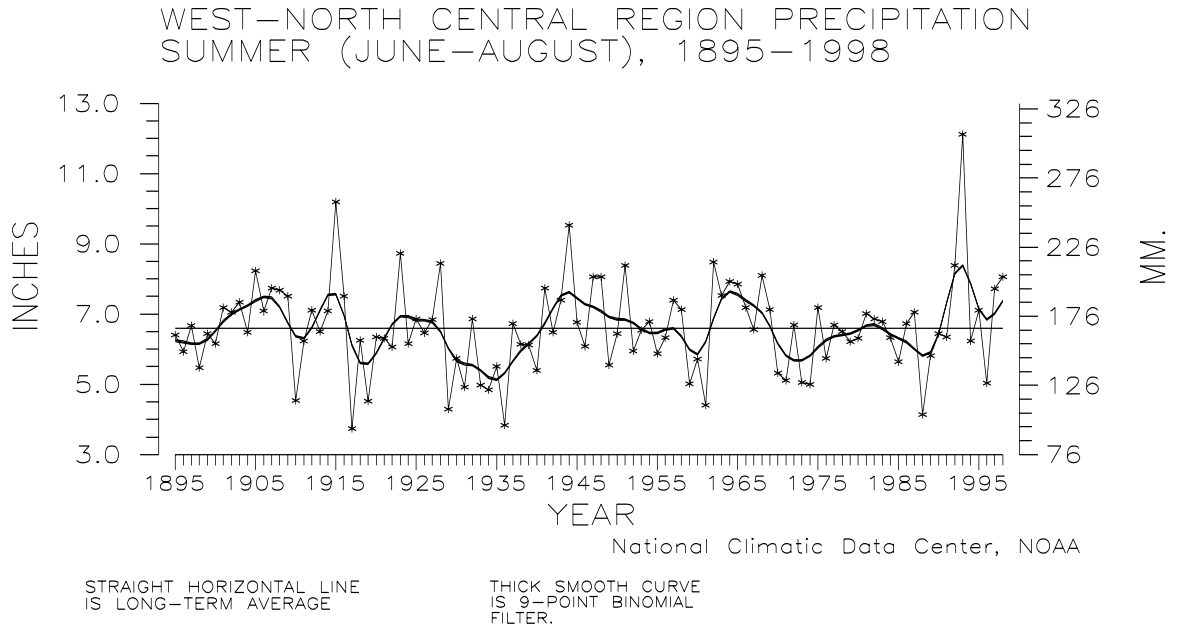

Figure 18 Preliminary data indicate that June-August 1998 was the 11th wettest such period on record for the West-North Central Region. The West-North Central Region includes Montana, Nebraska, North Dakota, South Dakota, and Wyoming.

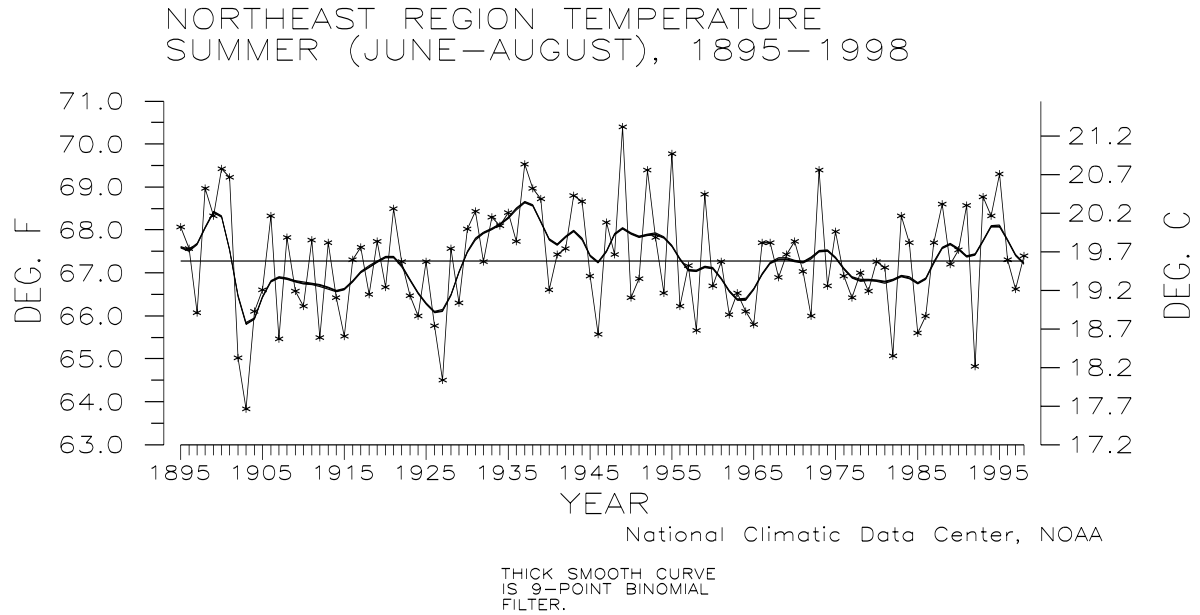

Figure 19: Based upon preliminary data, Summer 1998 was the 50th warmest such season on record for the Northeast Region.

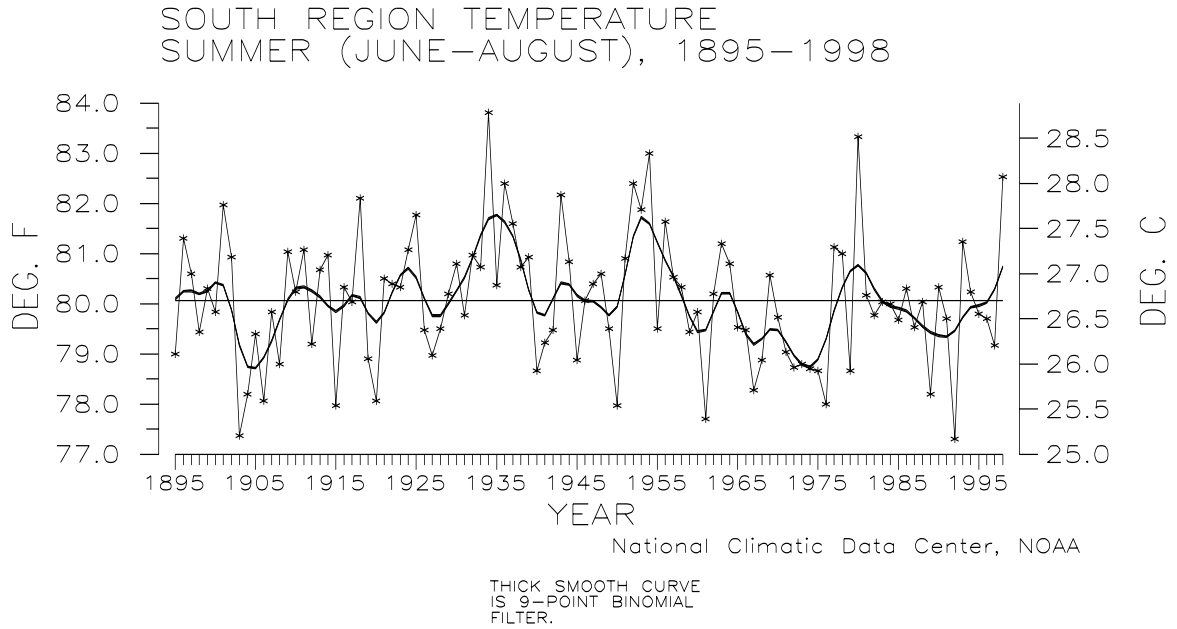

Figure 20: Based upon preliminary data, Summer 1998 was the fourth warmest such season on record for the South Region.

AUGUST 1998 STATEWIDE RANKS

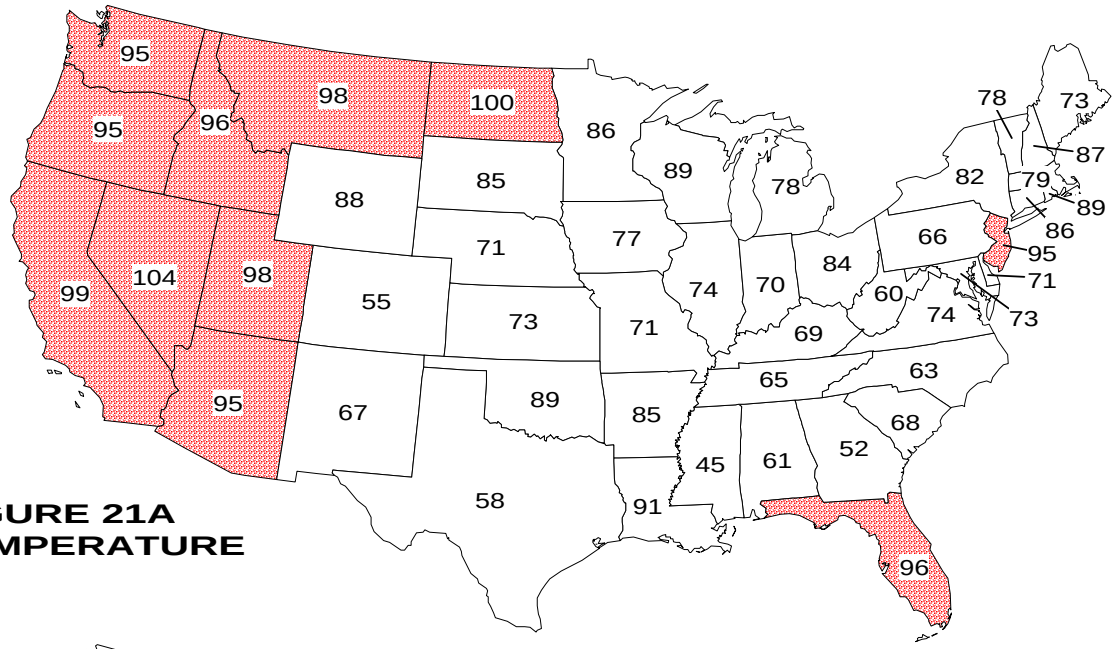

FIGURE 21A
TEMPERATURE

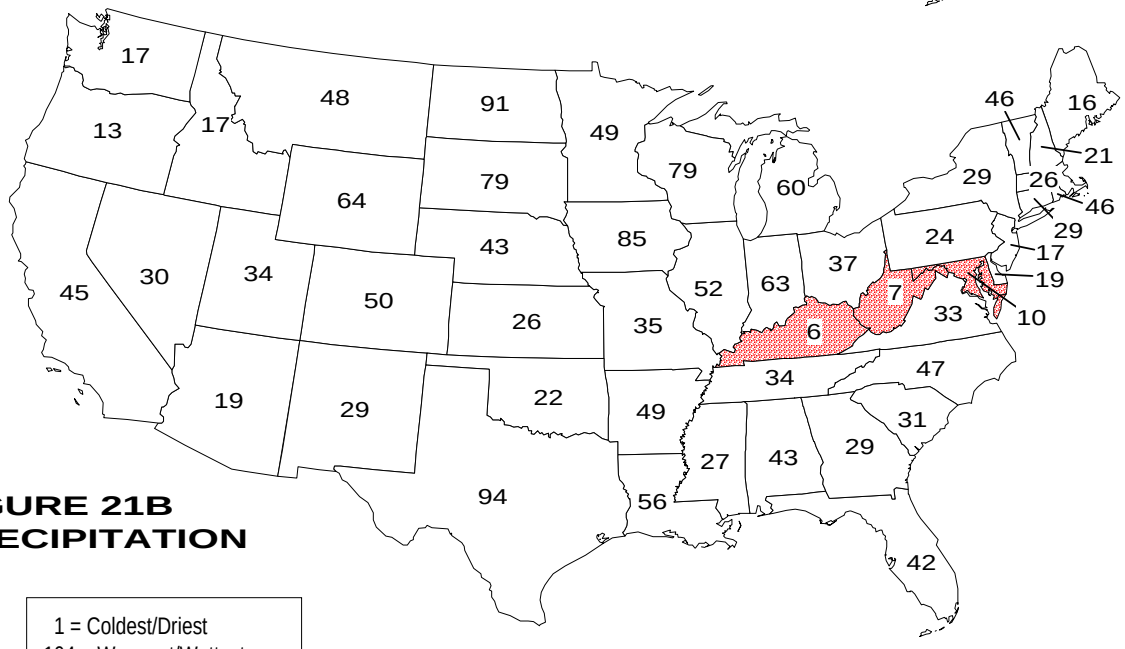

FIGURE 21B
PRECIPITATION

1 = Coldest/Driest
104 = Warmest/Wettest

National Climatic Data Center, NOAA

Temperature and Precipitation Ranks for the contiguous United States. Each state is ranked based on its data from 1895-1998. States having a rank of top ten coldest or driest (rank 1-10) or top ten warmest or wettest (rank 95-104) are shaded.

JAN-AUGUST 1998 STATEWIDE RANKS

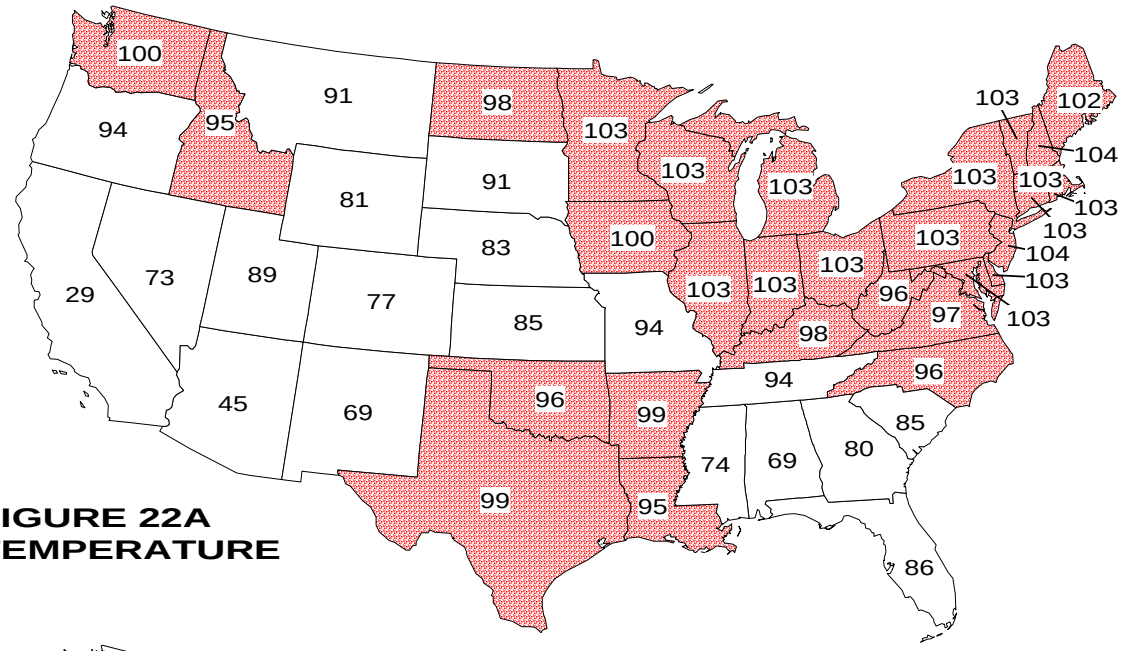

FIGURE 22A
TEMPERATURE

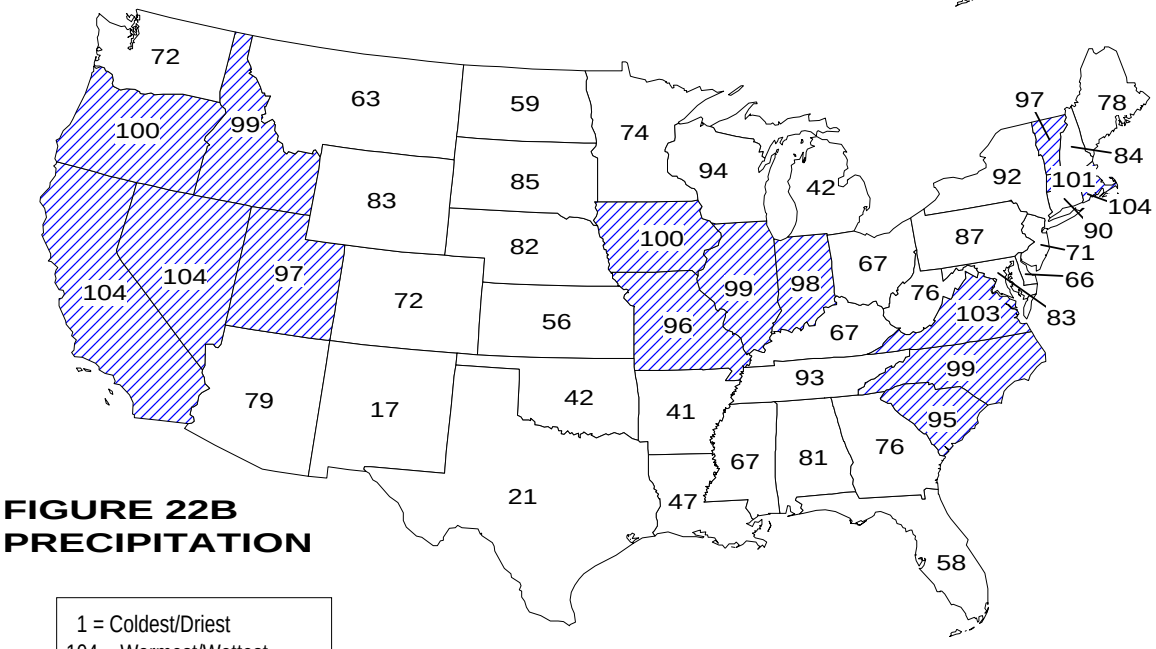

FIGURE 22B
PRECIPITATION

1 = Coldest/Driest
104 = Warmest/Wettest

National Climatic Data Center, NOAA

Temperature and Precipitation Ranks for the contiguous United States. Each state is ranked based on its data from 1895-1998. States having a rank of top ten coldest or driest (rank 1-10) or top ten warmest or wettest (rank 95-104) are shaded.

JUNE-AUGUST 1998 STATEWIDE RANKS

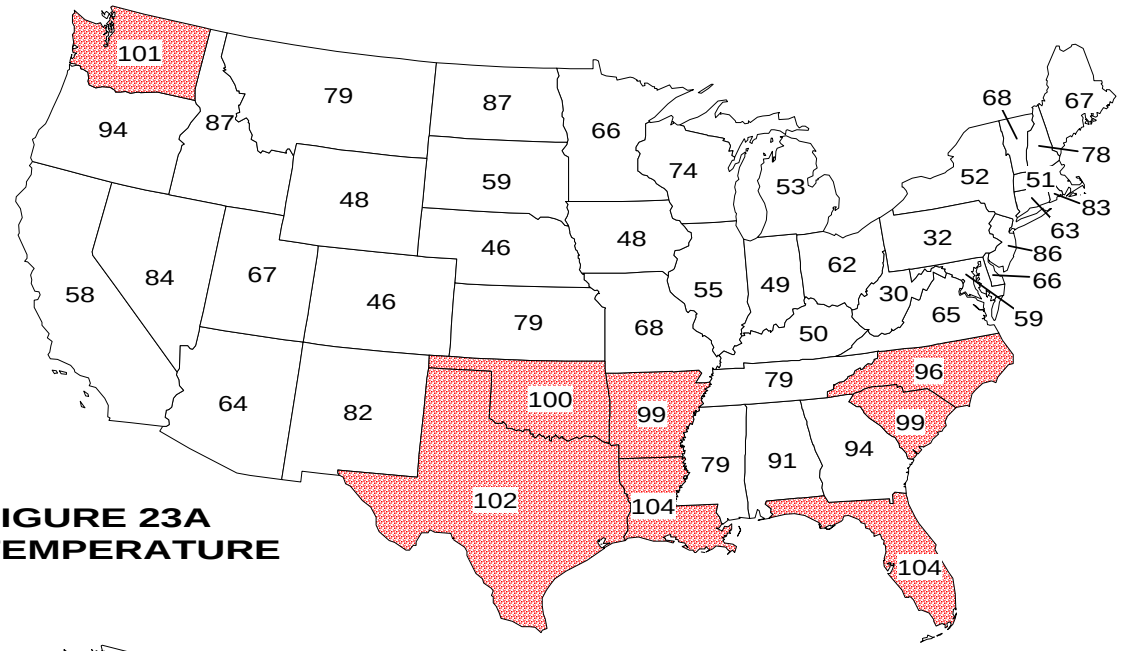

FIGURE 23A
TEMPERATURE

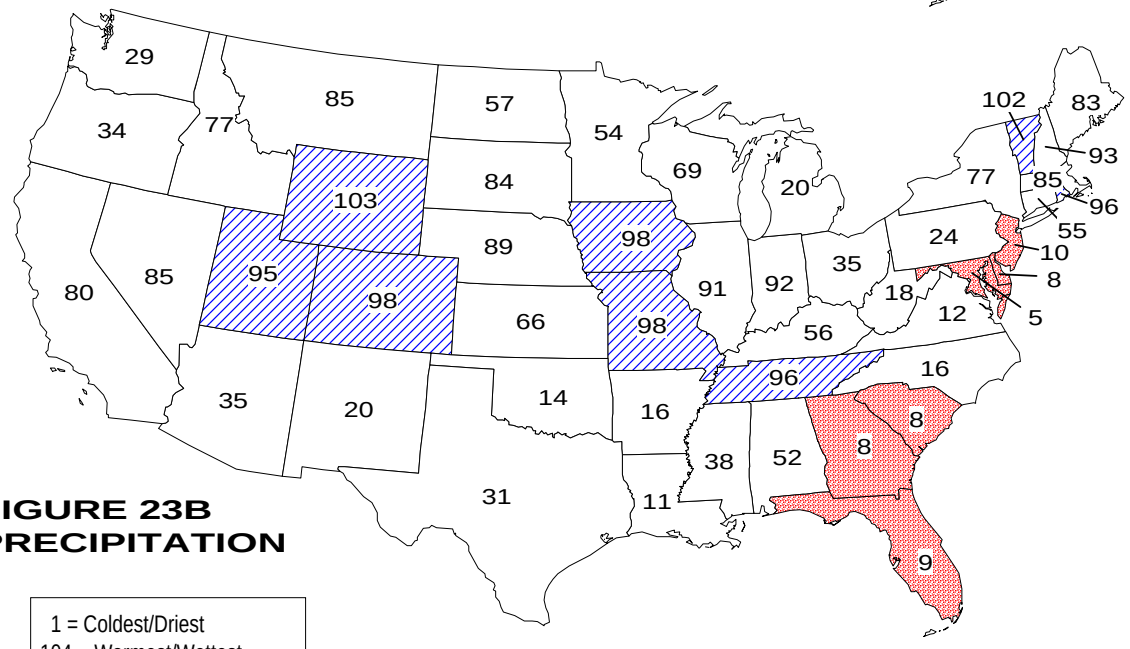

FIGURE 23B
PRECIPITATION

1 = Coldest/Driest
104 = Warmest/Wettest

National Climatic Data Center, NOAA

Temperature and Precipitation Ranks for the contiguous United States. Each state is ranked based on its data from 1895-1998. States having a rank of top ten coldest or driest (rank 1-10) or top ten warmest or wettest (rank 95-104) are shaded.

Figure 21A shows, in illustrative map form, the August 1998 temperature rankings for the 48 contiguous states. August 1998 was the warmest such month on record for Nevada and the fifth warmest on record for North Dakota. August 1998 was the sixth warmest August since 1895 for California and the seventh warmest on record for Montana and Utah. Seven other states ranked within top ten warm portion of the historical distribution while 25 others were within the warm third of the historical distribution. No state ranked within the cool third of the historical distribution.

August 1998 state ranks for precipitation are shown in **Figure 21B**. Three states ranked within the top ten dry portion of the distribution while 22 others ranked within the dry third portion of the distribution. Five states ranked within the wet third portion of the historical distribution. ***It should be noted that these August state precipitation ranks are preliminary and should be used with considerable caution due to the high variability of precipitation on a small space and time scale.***

Year-to-date 1998 statewide temperature and precipitation ranks are shown in **Figures 22A and 22B**. Twenty-nine states ranked within the top ten warm portion of the historical distribution while 15 others ranked within the warm third of the distribution. The year-to-date was the warmest such period on record for New Hampshire and New Jersey and the second warmest such eight-month period on record for Connecticut, Delaware, Illinois, Indiana, Maryland, Massachusetts, Michigan, Minnesota, New York, Ohio, Pennsylvania, Rhode Island, Vermont, and Wisconsin. No state was within the top ten cool while California ranked 29th coolest, the only state within the cool-third of the historical distribution. It was the wettest January-August period on record for California, Nevada, and Rhode Island while it was the second wettest such eight-month period on record for Virginia. Eleven other states ranked within the top ten wet portion of the distribution. Two states ranked within the dry third of the distribution.

Figure 23A shows the Summer (June-August) 1998 temperature rankings for the 48 contiguous states. Summer 1998 was the warmest on record for Florida and Louisiana, the third warmest on record for Texas, the fourth warmest for Washington, and the fifth warmest summer on record for Oklahoma. Three other states ranked within the top ten warm portion of the distribution while an additional 15 were within the warm-third portion of the historical distribution. Two states ranked within the cool third of the historical distribution.

Figure 23B shows the Summer 1998 precipitation rankings for the 48 contiguous states. Summer 1998 was the second wettest such season on record for Wyoming and the third wettest summer since 1895 for Vermont. Six other states ranked within the top ten wet portion of the distribution while an additional 12 ranked within the wet-third portion of the distribution. It was the fifth driest Summer on record for Maryland, eighth driest for Delaware, South Carolina and Georgia, ninth driest for Florida, and the tenth driest Summer since 1895 for New Jersey. Twelve additional states ranked within the dry-third of the distribution.